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November 22, 2000

Christine Kump
Project Coordinator
Hazardous Waste Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Dear Ms. Kump:

Enclosed is a Technical Memorandum detailing the October 2000 investigation results at the Modine Manufacturing Company, Camdenton, MO site. This document includes the supporting documentation from the laboratory analyses completed and is the follow up to the faxed material that CH2M Hill has provided you. If you have any questions on this report, please contact me at (262) 636-1649 or at the letterhead address.

Sincerely,

A handwritten signature in dark ink, appearing to read "Tom S. Sanicola".

Thomas S. Sanicola
Environmental Engineer

Cc: Modine Manufacturing Company - Camdenton
D. Garrett - EPA Region VII
S. Poplawski - Bryan Cave, LLP
D. Price - CH2M Hill
File(2)



R00176089

RCRA RECORDS CENTER

Modine Manufacturing Company
1500 DeKoven Avenue
Racine, Wisconsin 53403

Telephone 262-636-1200
FAX 262-636-1424

Modine Manufacturing - Camdenton October 2000 Investigation Results

PREPARED FOR: Thomas S. Sanicola

PREPARED BY: Daniel J. Price

COPIES: File

DATE: October 31, 2000

CH2M HILL is submitting this memo to summarize the results of the field work conducted the week of October 2, 2000. The scope of work consisted of two tasks: the collection of soil samples in an attempt to define the lateral extent of contamination surrounding a former boring (B-13 located near the end of the former stormwater drainage line), and collection of quarterly groundwater samples from the on- and off-site monitoring wells.

Boring B-13, advanced during an investigation in 1995, exhibited elevated volatile organic compound (VOC) concentrations in a soil sample collected from directly above bedrock, at a depth of 13 feet below ground surface (bgs). The soil sample exhibited trichloroethylene (TCE) and tetrachloroethylene (PCE) concentrations in excess of the current Missouri Department of Natural Resources (MDNR) Cleanup Levels for Missouri (CALM) Soil Target Concentration (STARC) and Leaching to Groundwater Pathway (C_{LEACH}) level of 204 parts per million (ppm) and 2.18 ppm respectively.

Groundwater samples collected from the on-site and off-site monitoring wells have consistently showed fluctuating concentrations of VOCs over the last eight years. Recent rounds of groundwater sampling, conducted by Sundstrand in June and July of 2000, indicated lead concentrations in groundwater above MDNR CALM Groundwater Target Concentration (GTARC) levels.

Results of Soil Delineation Effort

Four direct push soil probes were advanced during the October 2000 investigation. Three probes were advanced around the original boring B-13, each roughly 15 feet away from the original boring. The fourth probe was advanced in the immediate vicinity of boring B-13. Boring locations and identification are illustrated in the attached Figure and summarized below:

- Boring BH-1A was advanced 15 feet northwest of B-13
- Boring BH-2A was advanced 15 feet east of B-13
- Boring BH-3A was advanced 15 feet south of B-13
- Boring BH-4A, the off-set boring, was advanced 1 foot southeast of B-13

The location of B-13 was never surveyed as part of the original investigation. Therefore, the off-set distances referenced above should be viewed as approximate. All four borings

encountered refusal (bedrock) at depths ranging from 11 feet bgs to 13 feet bgs. Boring logs are presented in Attachment 1.

Soil samples were continuously collected and screened using a photoionization detector (PID). The sample exhibiting the highest measured concentration of VOCs was selected for submittal to the off-site laboratory. Samples were submitted to the laboratory from depths of 11 feet bgs in borings BH-1A and BH-2A, 10 feet bgs in boring BH-3A, and 6 feet bgs in boring BH-4A.

Constituents exceeding the STARC C_{LEACH} levels are presented by boring below. Concentrations are presented in ppm.

TABLE 1
Soil Compounds Exceeding STARC C_{LEACH} Levels
Modine Manufacturing, Camdenton, MO

Boring Location	Compound Name	Concentration (ppm)
BH-1A	1,1-DCE	2
	cis-1,2-DCE	30
	MC	0.023
	TCE	220
	1,1,2-TCA	0.056
	PCE	1.2
	VC	1.8
BH-2A	cis-1,2-DCE	7.8
	TCE	0.083
	VC	1.1
BH-3A	cis-1,2-DCE	3.2
	VC	1.1
BH-4A	cis-1,2-DCE	20
	TCE	20
	1,1,2-TCA	0.099
	VC	0.9

1,1-DCE = 1,1dichloroethylene

cis-1,2-DCE = cis-1,2-dichloroethene

MC = methylene chloride

TCE = trichloroethylene

PCE = tetrachloroethylene

VC = vinyl chloride

1,1,2-TCA = 1,1,2-trichloroethane

It should be noted that all of the VC concentrations are estimated values. The linear range of the calibration curve was exceeded. The cis-1,2 DCE concentration reported for the sample from boring BH-3A is also an estimated value. Methylene chloride was detected in the method blank at about the STARC concentration. Therefore, the MC exceedance should not be considered indicative of what is in the sample, but rather should be attributed to a laboratory artifact.

A table summarizing the soil analytical results reported at concentration in excess of the laboratory reporting limits is attached as Table 1. The actual laboratory analytical data sheets are attached in Attachment 2.

Groundwater Sampling Results

Groundwater samples were collected from the four on-site wells (MW-1 through MW-4) and the off-site well (MW-5). All of the wells were purged on October 4, 2000, and groundwater samples were collected on October 5, 2000, except for well MW-3 which was sampled on October 4, 2000. Samples were collected for VOC analyses and field-filtered for dissolved metals analyses.

A table summarizing the groundwater analytical results reported at concentration in excess of the laboratory reporting limits is attached as Table 2. The actual laboratory analytical data sheets are attached in Attachment 2.

Constituents concentrations were compared with GTARCs. TCE was the only VOC present in excess of GTARC screening levels. TCE concentrations of 140 parts per billion (ppb) and 150 ppb were reported in the sample and duplicate sample from monitoring well MW-4, the on-site well downgradient of the former lagoon. A TCE concentration of 290 ppb was reported in the off-site monitoring well MW-5.

It should be noted that cis-1,2 DCE was also present below GTARCs but above reporting levels in monitoring well MW-5, the off-site well near the former city-owned lagoon.

None of the wells sampled exhibited dissolved metals concentrations in excess of GTARC screening levels.

Conclusions

The following conclusions can be drawn from the results of the October 2000 investigation at the Camdenton Manufacturing Facility.

Soil

The effort to define the lateral extent of VOC-impacted soil in the area of former boring B-13, located near the discharge end of the former stormwater sewer line, was not successful. The effort did confirm the presence of chlorinated hydrocarbons in the general area. In a previous investigation conducted in 1995, the same constituents (TCE, PCE and DCE) were identified at similar to somewhat greater concentrations as compared to the October 2000 results. However, a new TCE daughter product constituent, VC, was identified in 2000. Given the relatively elevated VC concentration, it appears unlikely that the new "Encore" sampling methodology, which allows for less disturbance of a soil sample, is the sole reason for the detection of VC. Rather it appears that degradation of PCE and TCE is occurring.

The presence of increased levels of DCE, particularly cis-1,2 DCE, is also indicative of a typical TCE degradation pathway. Literature indicates that cis-1,2 DCE is generated at approximately 30 times the concentration of trans-1,2 DCE.

Therefore, it appears that significant biodegradation has occurred since the 1995 investigation. This could work to Modine's advantage following successful delineation and excavation of the most-highly impacted soil. We may be able to make the argument that sufficient biological activity is taking place in the subsurface to adequately remediate small residual pockets of VOC impacts in soil.

Groundwater

Previous rounds of groundwater sampling, conducted by Sundstrand in June and July of 2000, indicate lead concentrations in groundwater in excess of GTARC levels. These samples were split by Modine and were not filtered in the field. Filtered samples collected during the 2000 investigation indicate that the dissolved lead portion is below detectable levels. This suggests that the lead levels previously obtained were due to suspended materials in the groundwater samples. This assertion would not support MDNR's theory that the lead impact in the wells is related to lead-impacted soil associated with the former mudpits. Groundwater samples collected in 2000 did not appear to be highly turbid.

It should be noted that the groundwater purged and sampled from the off-site monitoring well MW-5 appeared light green. This discoloration is likely due to the past use of this well as an injection point for the fluorescence dye tracing that was conducted last fall.

VOC concentrations in the groundwater samples remained similar to those obtained during the sampling efforts conducted earlier this year. Both the TCE and cis-1,2 DCE concentrations in samples from MW-5 remained nearly the same as those from the July sampling event, dropping slightly from the June sampling event. The reported TCE concentrations in the sample and duplicate from MW-4 increased, but the cis-1,2 DCE detected in June and July was not present in October. The low concentrations of TCE reported in monitoring wells MW-1 and MW-2 in June were also not present in the October sample. These results would suggest that the differences in VOC concentrations are due to natural seasonal fluctuations.

Recommendations

The location of the newly installed borings should be surveyed for precise horizontal and vertical location. Horizontal placement will allow us to relocate these locations when new work is implemented. Vertical elevation will allow these points to be used in mapping of the bedrock surface and, more importantly, to accurately assess the required soil volume for removal, if the impact actually extends down the slope to the west.

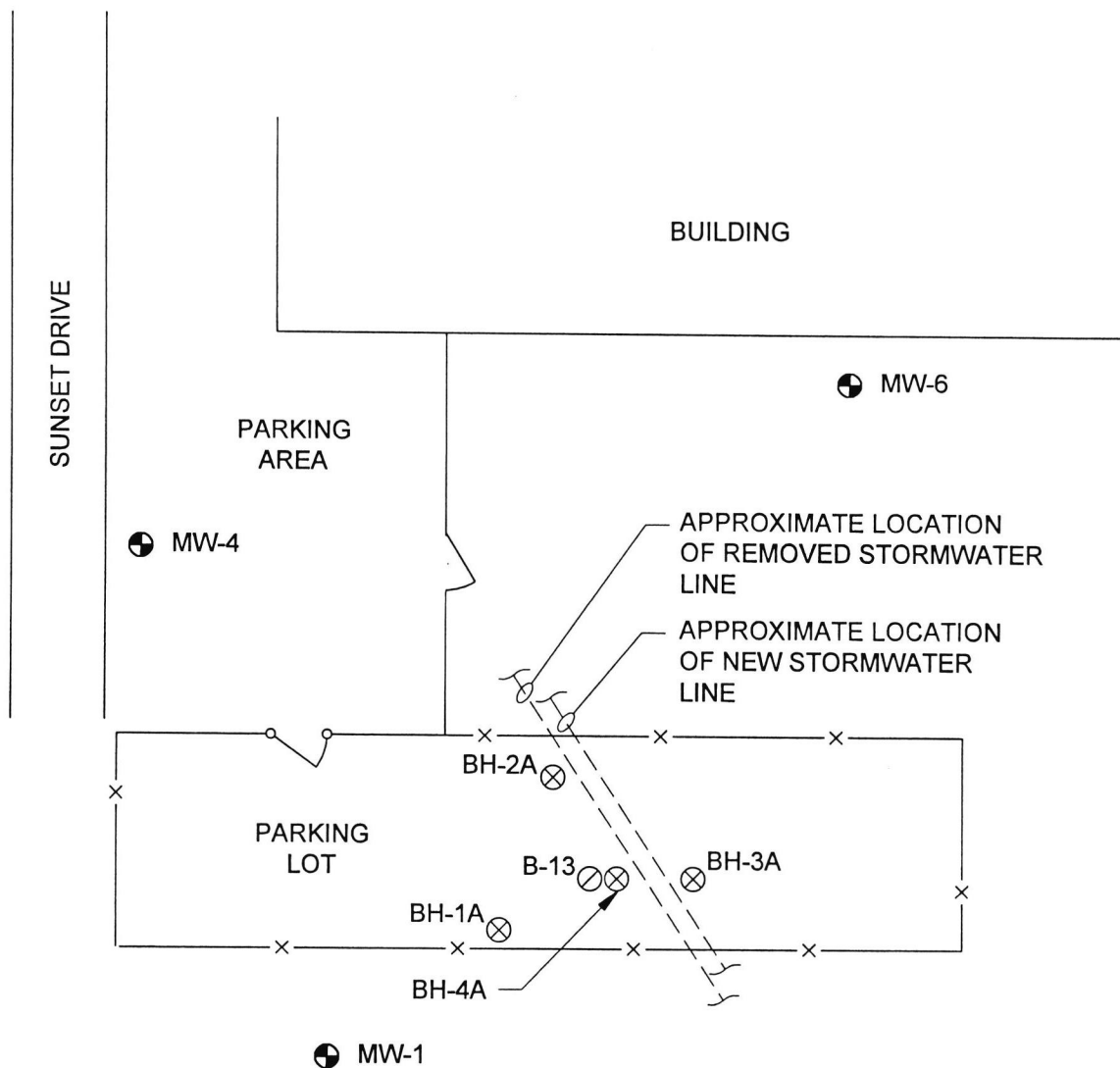
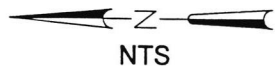
An additional follow-up investigation should be implemented to complete delineation activities. The number of borings required for delineation will be determined based on field measurements; however, a minimum of five borings is recommended. The proposed location of these five borings are as follows:

- North of BH-1A,
- Northeast of BH-2A,

- East of BH-3A,
- Southwest of BH-3A, and
- At the base of the slope directly west of BH-4A

Groundwater sampling of the on-site wells should continue on a quarterly basis. It may not be necessary for Modine to incur monitoring costs, if the on-site wells become a part of the wider monitoring network implemented by Sundstrand as part of the CERCLA lagoon investigation.

Figure



⊕ EXISTING MONITORING WELL (MW-4)

⊗ SOIL BORING 2000

⊙ SOIL BORING 1995

SOIL BORING AND MONITORING
WELL LOCATIONS
MODINE MANUFACTURING COMPANY
CAMENTON, MISSOURI

CH2MHILL

Tables

MODINE MANUFACTURING COMPANY
Soil Sampling Results
CH2M Hill - October 3, 2000

Constituents	BH-1A (11)	BH-2A (11)	BH-3A (10)	BH-4A (6)	CALM Screening Levels ^A	Region 6 Screening Levels ^B
VOCs						
Xylenes	0.01	ND	0.006	0.006	55	10
Vinyl Chloride	1.8	1.1	1.1	0.9	0.016	0.0007
1,1-Dichloroethene	0.2	0.013	ND	ND	0.1	0.003
Acetone	0.15	0.024	0.052	0.27	14	0.8
Methylene Chloride	0.023	0.015	0.016	0.03	0.021	0.001
trans-1,2-Dichloroethene	0.085	0.026	0.006	0.018	1.13	0.03
cis-1,2-Dichloroethene	30	7.8	3.2	20	0.51	0.02
Trichloroethene	220	0.083	0.006	20	0.097	0.003
Toluene	0.027	0.005	0.01	0.013	5.13	0.6
1,1,2-Trichloroethane	0.056	ND	ND	0.099	0.049	0.0009
Tetrachloroethene	1.2	ND	ND	0.093	0.42	0.003
4-Methyl-2-pentanone	ND	ND	ND	0.027	NA	NA

Notes:

Units in parts per million (ppm)

ND - Not Detected

NA - Not Available

Cleanup Levels^A - MDNR CALM, September 1998, Soil Target Concentration (STARC)

Cleanup Levels^B - Region 6-Human Health Medium-Specific Screening Levels,
Soil Screening Level Transfers from Soil to Groundwater

MODINE MANUFACTURING COMPANY
Groundwater Sampling Results
CH2M Hill - October 4-5, 2000

Parameters	MW-1	MW-2	MW-3	MW-4	MW-5	MW-4 (Dup)	Region 6 Screening Levels ^A
<i>VOCs</i>							
cis-1,2-Dichloroethene	ND	ND	ND	ND	14	ND	70
Trichloroethene	ND	ND	ND	140	290	150	5
<i>RCRA Metals</i>							
Barium	58	92	64	71	48	70	2000
Mercury	0.5	ND	ND	ND	ND	ND	2

Notes:

Units in parts per billion (ppb)

ND - Not Detected

NA - Not Available

Cleanup Levels^A - Region 6-Human Health Medium-Specific Screening Levels, Maximum Cleanup Level (MCL)

Attachment 1
Boring Logs

**CH2MHILL**

PROJECT NUMBER 161004.CA.01	BORING NUMBER BH-1A	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT : Modine Manufacturing LOCATION : Camdenton, MO 179 Sunset Drive
 ELEVATION : DRILLING CONTRACTOR : GEOTECHNOLOGY
 DRILLING METHOD AND EQUIPMENT USED : DPT WITH CME 75 DATE :
 WATER LEVELS : DRY @ 13:35 START : 10/03/2000 0808 END : 0905
 LOGGER : T. SWOVELAND CHAPMAN

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)			STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION	COMMENTS		
	RECOVERY (IN)	#/TYPE	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.			DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION PID (ppm).		
						PID (ppm):	Breathing Zone	Head Space
	1-4	0.11			GRAVEL AND ASPHALT, FILL, WHITE (1')		1.8	2.7
5	4-8	1			CLAY, CH, YELLOWISH RED, MOIST, MEDIUM STIFF WITH FINE GRAVEL (CHERT) AND SAND		1.4	110.0
10	8-12	2.8	BH-1A (11)		GRADES TO YELLOWISH AND BROWN MOTTLED GRADES TO OLIVE GRAY		1.6	858.0
	12-13	1			INCREASED SAND AND CHERT REFUSAL @ 13.0' BGS		1.8	16.5
15								
20								
25								



SHEET 1 OF 1

LOGGER : T. SWOVELAND CHAPMAN

161004-BH-2A.xls

**CH2MHILL**

PROJECT NUMBER 161004.CA.01	BORING NUMBER BH-3A	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT : Modine Manufacturing LOCATION : Camdenton, MO 179 Sunset Drive

ELEVATION : DRILLING CONTRACTOR : GEOTECHNOLOGY

DRILLING METHOD AND EQUIPMENT USED : DPT WITH CME 75 DATE:

WATER LEVELS : DRY @ 13:37 START : 10/03/2000 10:49 END : 11:01 LOGGER : T. SWOVELAND CHAPMAN

DEPTH BELOW SURFACE (FT)	DEPTH BELOW SURFACE (FT)			STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION	COMMENTS		
	INTERVAL (FT)	RECOVERY (IN)				DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION PID (ppm).		
		#/TYPE						
							PID (ppm):	Breathing Zone
	1-4	0.8			GRAVEL AND ASPHALT, FILL (1')	0.9	0.8	
5	4-8	2			CLAY, CH, YELLOWISH RED, MOIST, HARD WITH FINE GRAVEL AND SAND GRADES TO OLIVE GRAY, MEDIUM STIFF.			
					GRADES TO BROWN AND YELOWISH RED MOTTLED DUE TO IRON STAINING	0.4	0.6	
					GRADES TO OLIVE GRAY			
					STIFF			
10	8-11	3	BH-3A(10)		GRADES WITH BLACK ASH PIECES	0.8	37.3	
					CHERT, WHITE, DRY WITH SAND			
					REFUSAL @ 11.0' BGS.			
15								
20								
25								

**CH2MHILL**

PROJECT NUMBER 161004.CA.01	BORING NUMBER BH-4A	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT : Modine Manufacturing LOCATION : Camdenton, MO 179 Sunset Drive
 ELEVATION : DRILLING CONTRACTOR : GEOTECHNOLOGY
 DRILLING METHOD AND EQUIPMENT USED : DPT WITH CME 75 DATE:
 WATER LEVELS : DRY @ 13:37 START : 10/03/2000 11:15 END : 11:30 LOGGER : T. SWOVELAND CHAPMAN

DEPTH BELOW SURFACE (FT)				STANDARD	SOIL DESCRIPTION	COMMENTS		
	INTERVAL (FT)	RECOVERY (IN)		PENETRATION	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION PID (ppm).		
				TEST RESULTS				
				#/TYPE		6"-6"-6"-6" (N)	PID (ppm):	Breathing Zone
	1-4	1.5			GRAVEL AND ASPHALT, FILL (1')		0.7	11.8
5	4-8	2	BH-4A(6)		CLAY, CH, YELLOWISH RED, MOIST, HARD WITH FINE GRAVEL (CHERT) AND SAND GRADES TO OLIVE GRAY, MEDIUM STIFF.			
					GRADES TO OLIVE GRAY AND YELLOWISH RED DUE TO IRON STAINING		0.6	119.4
					CHERT AND SAND LAYER (.5') HARD			
					GRADES TO YELLOWISH RED		1.2	94.6
10	8-11	1.5						
					REFUSAL @ 11.0' BGS.			
15								
20								
25								

Attachment 2
Laboratory Analytical Data Sheets

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

October 19, 2000

Chris English
CH2M Hill
727 North First Street, Ste 400
St. Louis, MO 63102

CASE NARRATIVE

PROJECT : #161004.CA.01 - Modine Mfg.
RECEIVED: October 5, 2000

<u>ATAS ID</u>	<u>CLIENT ID</u>	<u>MATRIX</u>
30986.01	BH-1A(11)	Soil
30986.02	BH-2A(11)	Soil
30986.03	BH-3A(10)	Soil
30986.04	BH-4A(6)	Soil
30986.05	MW-1	Water
30986.06	MW-2	Water
30986.07	MW-3	Water
30986.08	MW-5	Water
30986.09	MW-4	Water
30986.10	MW-4A	Water
30986.11	EB-1	Water

I certify that the procedures used for testing are in compliance with the terms and conditions of the methods, both technically and for completeness, for other than any conditions detailed below. In addition, I certify that to the best of my knowledge and belief, the data as reported are true and accurate.

Samples BH-1A(11), BH-2A(11), and BH-4A(6) are reported with an E flag (estimated value) for Vinyl Chloride. Sample BH-3A(10) is reported with an E flag (estimated value) for Vinyl Chloride and cis-1,2-Dichloroethene. Due to the non-homogeneous matrix, attempts to use a smaller sample aliquot from the jar provided did not reflect the amount of Vinyl Chloride and cis-1,2-Dichloroethene shown in the low-level pre-preserved container.

Release of the data contained in this report has been authorized by the Laboratory Manager and Project Manager, as verified by the following signature.

Thank you for choosing ATAS for your analytical needs.



Jeffrey A. Carr
Project Manager

JAC/jp

Enclosures

ATAS

"Professional Commitment"

VOLATILES ANALYSIS		
Purge / Trap	SW-5030	X
	SW-5035	X
SEMI-VOLATILE ANALYSIS		
Soxhlet Extraction	SW-3540C	
Sonication Extraction	SW-3550B	
GPC Clean-Up	SW-3640A	
Separatory Funnel Extraction	SW-3510C	
Continuous Extractors	SW-3520C	
H ₂ SO ₄ Clean-Up	SW-3665A	
PESTICIDE / PCB's		
Soxhlet Extraction	SW-3540C	
Sonication Extraction	SW-3550B	
GPC Clean-Up	SW-3640A	
Florisil Clean-Up	SW-3620B	
Silica Gel Clean-Up	SW-3630C	
H ₂ SO ₄ Clean-Up	SW-3665A	
Separatory Funnel Extraction	SW-3510C	
Continuous Extractors	SW-3520C	
METALS ANALYSIS		
Sample Digestion	SW-3050B	
	SW-3005A	X
	SW-3010A	
HERBICIDES, PAH's BY HPLC AND NITROAROMATICS BY GC		
Soxhlet Extraction	SW-3540C	
Sonication Extraction	SW-3550B	
Separatory Funnel Extraction	SW-3510C	
TOXICITY CHARACTERISTIC LEACHING PROCEDURE		
TCLP Extraction	SW-1311	

An entry (check or X) in the box to the right of a method reference indicates that this method was followed, in addition to the methods referenced on the results pages, in the analysis of samples described in this report.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : **SOIL**
 ATAS # : 30986.01B
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-08-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : BH-1A(11)

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
XYLENE (TOTAL)	5	10	TOLUENE	5	27
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	56
VINYL CHLORIDE	10	1800 E	TETRACHLOROETHENE	500	1200
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	200	1,2-DIBROMOETHANE	5	ND
ACETONE	10	150	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	23 B	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	85	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5000	30000	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5000	220000	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 84% BROMOFLUOROBENZENE(74-121) 99%
 1,2-DICHLOROETHANE-D4(70-121) 116%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

E = ESTIMATED VALUE; EXCEEDS LINEAR RANGE

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE
 VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : SOIL
 ATAS # : 30986.02B
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : BH-2A(11)

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L. RESULTS</u>		<u>VOLATILES</u>	<u>R.L. RESULTS</u>	
XYLENE (TOTAL)	5	ND	TOLUENE	5	5
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	1100 E	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	13	1,2-DIBROMOETHANE	5	ND
ACETONE	10	24	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	15 B	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	26	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	500	7800	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5	83	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 102% BROMOFLUOROBENZENE(74-121) 114%
 1,2-DICHLOROETHANE-D4(70-121) 119%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

E = ESTIMATED VALUE; EXCEEDS LINEAR RANGE

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : SOIL
 ATAS # : 30986.03B
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : BH-3A(10)

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L. RESULTS</u>		<u>VOLATILES</u>	<u>R.L. RESULTS</u>	
XYLENE (TOTAL)	5	6	TOLUENE	5	10
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	1100 E	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	52	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	16 B	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	6	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5	3200 E	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5	6	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 104% BROMOFLUOROBENZENE(74-121) 110%
 1,2-DICHLOROETHANE-D4(70-121) 115%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

E = ESTIMATED VALUE; EXCEEDS LINEAR RANGE

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE
 VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : SOIL
 ATAS # : 30986.04B
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : BH-4A(6)

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L. RESULTS</u>		<u>VOLATILES</u>	<u>R.L. RESULTS</u>	
XYLENE (TOTAL)	5	6	TOLUENE	5	13
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	99
VINYL CHLORIDE	10	900 E	TETRACHLOROETHENE	5	93
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	270	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	30 B	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	18	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	500	20000	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	500	20000	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	27	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 99% BROMOFLUOROBENZENE(74-121) 114%
 1,2-DICHLOROETHANE-D4(70-121) 116%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

E = ESTIMATED VALUE; EXCEEDS LINEAR RANGE

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : 30986.05A
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : MW-1

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

<u>VOLATILES</u>		<u>R.L. RESULTS</u>	<u>VOLATILES</u>		<u>R.L. RESULTS</u>
XYLENE (TOTAL)	5	ND	TOLUENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	ND	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	ND	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	ND	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5	ND	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROETHANE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(80-116) 102% BROMOFLUOROBENZENE(86-115) 109%
 1,2-DICHLOROETHANE-D4(76-114) 103%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : 30986.06A
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : MW-2

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
XYLENE (TOTAL)	5	ND	TOLUENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	ND	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	ND	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	ND	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5	ND	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(80-116) 102% BROMOFLUOROBENZENE(86-115) 108%
 1,2-DICHLOROETHANE-D4(76-114) 103%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE
 VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : 30986.07A
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : MW-3

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
XYLENE (TOTAL)	5	ND	TOLUENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	ND	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	ND	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	ND	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5	ND	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(80-116) 98% BROMOFLUOROBENZENE(86-115) 102%
 1,2-DICHLOROETHANE-D4(76-114) 98%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE
 VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : 30986.08A
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : MW-5

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
XYLENE (TOTAL)	5	ND	TOLUENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	ND	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	ND	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	ND	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5	14	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	10	290	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(80-116) 98% BROMOFLUOROBENZENE(86-115) 105%
 1,2-DICHLOROETHANE-D4(76-114) 99%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : **WATER**
 ATAS # : 30986.09A
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : **MW-4**

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
XYLENE (TOTAL)	5	ND	TOLUENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	ND	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	ND	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	ND	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5	140	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(80-116) 98% BROMOFLUOROBENZENE(86-115) 105%
 1,2-DICHLOROETHANE-D4(76-114) 99%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : 30986.10A
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : MW-4A

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
XYLENE (TOTAL)	5	ND	TOLUENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	ND	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	ND	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	ND	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5	150	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(80-116) 99% BROMOFLUOROBENZENE(86-115) 105%
 1,2-DICHLOROETHANE-D4(76-114) 101%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE
 VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : 30986.11A
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : EB-1

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
XYLENE (TOTAL)	5	ND	TOLUENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	ND	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	ND	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	ND	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5	ND	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(80-116) 99% BROMOFLUOROBENZENE(86-115) 104%
 1,2-DICHLOROETHANE-D4(76-114) 100%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE
 VALUES BELOW THIS LIMIT WERE NOT REPORTED.

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : SOIL
 ATAS # : METHOD BLANK
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-08-00
 METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
XYLENE (TOTAL)	5	ND	TOLUENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	ND	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	ND	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	11	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5	ND	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 99% BROMOFLUOROBENZENE(74-121) 102%
 1,2-DICHLOROETHANE-D4(70-121) 100%

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE
 VALUES BELOW THIS LIMIT WERE NOT REPORTED.

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX: SOIL
 DATE ANALYZED: 10-08-00
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

REPORT DATE: 10-19-00

LABORATORY CONTROL SAMPLE RECOVERY

<u>COMPOUND</u>	<u>LCS % REC.</u>
1,1-DICHLOROETHENE	92
TRICHLOROETHENE	100
BENZENE	102
TOLUENE	102
CHLOROBENZENE	96

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX: SOIL
 DATE ANALYZED: 10-08-00 and 10-09-00
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

REPORT DATE: 10-19-00

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	30943.05	30943.05	RPD	QC	ADVISORY
	MS % REC.	MSD % REC.		RPD	LIMITS
1,1-DICHLOROETHENE	73	76	4	28	43-151
TRICHLOROETHENE	73	75	3	7	45-137
BENZENE	78	81	4	12	57-143
TOLUENE	75	78	4	16	42-147
CHLOROBENZENE	65	66	2	7	58-133

* = VALUES OUTSIDE OF ADVISORY LIMITS

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601VO(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : METHOD BLANK
 DATE SUBMITTED: 10-05-00
 DATE ANALYZED : 10-09-00

METHOD REF.: SW846-8260B, EPA METHODOLOGY
 PROJECT # : 161004.CA.01 - MODINE MFG.
 SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
XYLENE (TOTAL)	5	ND	TOLUENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	trans-1,3-DICHLOROPROPENE	5	ND
CHLOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
VINYL CHLORIDE	10	ND	TETRACHLOROETHENE	5	ND
BROMOMETHANE	10	ND	1,3-DICHLOROPROPANE	5	ND
CHLOROETHANE	10	ND	2-HEXANONE	10	ND
TRICHLOROFLUOROMETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	1,2-DIBROMOETHANE	5	ND
ACETONE	10	ND	CHLOROBENZENE	5	ND
IODOMETHANE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
CARBON DISULFIDE	5	ND	ETHYLBENZENE	5	ND
METHYLENE CHLORIDE	5	ND	STYRENE	5	ND
trans-1,2-DICHLOROETHENE	5	ND	BROMOFORM	5	ND
METHYL TERT-BUTYL ETHER	10	ND	ISOPROPYLBENZENE	5	ND
1,1-DICHLOROETHANE	5	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
VINYL ACETATE	10	ND	BROMOBENZENE	5	ND
2,2-DICHLOROPROPANE	5	ND	1,2,3-TRICHLOROPROPANE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	n-PROPYLBENZENE	5	ND
2-BUTANONE	10	ND	2-CHLOROTOLUENE	5	ND
BROMOCHLOROMETHANE	5	ND	1,3,5-TRIMETHYLBENZENE	5	ND
CHLOROFORM	5	ND	4-CHLOROTOLUENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	TERT-BUTYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	sec-BUTYLBENZENE	5	ND
BENZENE	5	ND	1,3-DICHLOROBENZENE	5	ND
1,2-DICHLOROETHANE	5	ND	p-ISOPROPYLTOLUENE	5	ND
TRICHLOROETHENE	5	ND	1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	n-BUTYLBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DICHLOROBENZENE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
4-METHYL-2-PENTANONE	10	ND	HEXACHLOROBUTADIENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND	NAPHTHALENE	5	ND

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(80-116) 100% BROMOFLUOROBENZENE(86-115) 102%
 1,2-DICHLOROETHANE-D4(76-114) 103%

ND = NOT DETECTED ABOVE REPORTING LIMIT

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE
 VALUES BELOW THIS LIMIT WERE NOT REPORTED.

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX: WATER
 DATE ANALYZED: 10-09-00
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

REPORT DATE: 10-19-00

LABORATORY CONTROL SAMPLE RECOVERY

<u>COMPOUND</u>	<u>LCS % REC.</u>
1,1-DICHLOROETHENE	88
TRICHLOROETHENE	100
BENZENE	100
TOLUENE	98
CHLOROBENZENE	92

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX: WATER
 DATE ANALYZED: 10-09-00
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

REPORT DATE: 10-19-00

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	30986.05A	30986.05A	RPD	QC	ADVISORY
	MS % REC.	MSD % REC.		RPD	LIMITS
1,1-DICHLOROETHENE	90	94	4	16	47-137
TRICHLOROETHENE	104	104	0	11	81-117
BENZENE	100	98	2	12	81-118
TOLUENE	100	100	0	10	75-128
CHLOROBENZENE	94	96	2	8	85-115

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CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601MT(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : 30986.05C
 DATE SUBMITTED: 10-05-00
 PROJECT : #161004.CA.01 - MODINE MFG.
 SAMPLE ID : MW-1

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
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DISSOLVED METALS

ARSENIC	0.05	mg/L	ND	10-10-00	SW 6010B
BARIUM	0.02	mg/L	0.058	10-10-00	SW 6010B
CADMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
CHROMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
LEAD	0.05	mg/L	ND	10-10-00	SW 6010B
SILVER	0.02	mg/L	ND	10-10-00	SW 6010B
SELENIUM	0.10	mg/L	ND	10-10-00	SW 6010B
MERCURY	0.0002	mg/L	0.0005	10-19-00	SW 7470A

mg/L = PARTS PER MILLION (PPM)

ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601MT(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : 30986.06C
 DATE SUBMITTED: 10-05-00
 PROJECT : #161004.CA.01 - MODINE MFG.
 SAMPLE ID : MW-2

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
DISSOLVED METALS					
ARSENIC	0.05	mg/L	ND	10-10-00	SW 6010B
BARIUM	0.02	mg/L	0.092	10-10-00	SW 6010B
CADMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
CHROMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
LEAD	0.05	mg/L	ND	10-10-00	SW 6010B
SILVER	0.02	mg/L	ND	10-10-00	SW 6010B
SELENIUM	0.10	mg/L	ND	10-10-00	SW 6010B
MERCURY	0.0002	mg/L	ND	10-19-00	SW 7470A

mg/L = PARTS PER MILLION (PPM)

ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601MT(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : 30986.07C
 DATE SUBMITTED: 10-05-00
 PROJECT : #161004.CA.01 - MODINE MFG.
 SAMPLE ID : MW-3

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
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DISSOLVED METALS

ARSENIC	0.05	mg/L	ND	10-10-00	SW 6010B
BARIUM	0.02	mg/L	0.064	10-10-00	SW 6010B
CADMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
CHROMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
LEAD	0.05	mg/L	ND	10-10-00	SW 6010B
SILVER	0.02	mg/L	ND	10-10-00	SW 6010B
SELENIUM	0.10	mg/L	ND	10-10-00	SW 6010B
MERCURY	0.0002	mg/L	ND	10-19-00	SW 7470A

mg/L = PARTS PER MILLION (PPM)

ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
ATTN: CHRIS ENGLISH

REPORT: 3098601MT(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
ATAS # : 30986.08C
DATE SUBMITTED: 10-05-00
PROJECT : #161004.CA.01 - MODINE MFG.
SAMPLE ID : MW-5

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
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DISSOLVED METALS

ARSENIC	0.05	mg/L	ND	10-10-00	SW 6010B
BARIUM	0.02	mg/L	0.048	10-10-00	SW 6010B
CADMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
CHROMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
LEAD	0.05	mg/L	ND	10-10-00	SW 6010B
SILVER	0.02	mg/L	ND	10-10-00	SW 6010B
SELENIUM	0.10	mg/L	ND	10-10-00	SW 6010B
MERCURY	0.0002	mg/L	ND	10-19-00	SW 7470A

mg/L = PARTS PER MILLION (PPM)

ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601MT(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
ATAS # : 30986.09C
DATE SUBMITTED: 10-05-00
PROJECT : #161004.CA.01 - MODINE MFG.
SAMPLE ID : MW-4

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
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DISSOLVED METALS

ARSENIC	0.05	mg/L	ND	10-10-00	SW 6010B
BARIUM	0.02	mg/L	0.071	10-10-00	SW 6010B
CADMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
CHROMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
LEAD	0.05	mg/L	ND	10-10-00	SW 6010B
SILVER	0.02	mg/L	ND	10-10-00	SW 6010B
SELENIUM	0.10	mg/L	ND	10-10-00	SW 6010B
MERCURY	0.0002	mg/L	ND	10-19-00	SW 7470A

mg/L = PARTS PER MILLION (PPM)

ND = NOT DETECTED ABOVE REPORTING LIMIT

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CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
 ATTN: CHRIS ENGLISH

REPORT: 3098601MT(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
 ATAS # : 30986.10C
 DATE SUBMITTED: 10-05-00
 PROJECT : #161004.CA.01 - MODINE MFG.
 SAMPLE ID : MW-4A

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
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DISSOLVED METALS

ARSENIC	0.05	mg/L	ND	10-10-00	SW 6010B
BARIUM	0.02	mg/L	0.070	10-10-00	SW 6010B
CADMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
CHROMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
LEAD	0.05	mg/L	ND	10-10-00	SW 6010B
SILVER	0.02	mg/L	ND	10-10-00	SW 6010B
SELENIUM	0.10	mg/L	ND	10-10-00	SW 6010B
MERCURY	0.0002	mg/L	ND	10-19-00	SW 7470A

mg/L = PARTS PER MILLION (PPM)

ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
ATTN: CHRIS ENGLISH

REPORT: 3098601MT(738)

DATE : 10-19-00

SAMPLE MATRIX : WATER
ATAS # : 30986.11C
DATE SUBMITTED: 10-05-00
PROJECT : #161004.CA.01 - MODINE MFG.
SAMPLE ID : EB-1

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
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DISSOLVED METALS

ARSENIC	0.05	mg/L	ND	10-10-00	SW 6010B
BARIUM	0.02	mg/L	ND	10-10-00	SW 6010B
CADMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
CHROMIUM	0.01	mg/L	ND	10-10-00	SW 6010B
LEAD	0.05	mg/L	ND	10-10-00	SW 6010B
SILVER	0.02	mg/L	ND	10-10-00	SW 6010B
SELENIUM	0.10	mg/L	ND	10-10-00	SW 6010B
MERCURY	0.0002	mg/L	ND	10-19-00	SW 7470A

mg/L = PARTS PER MILLION (PPM)

ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: CH₂M HILL
 727 NORTH FIRST STREET, STE 400
 ST. LOUIS, MO 63102
ATTN: CHRIS ENGLISH

REPORT: 3098601MT(738)

DATE : 10-19-00

QA/QC

DESCRIPTION		PARAMETER	RESULTS	
METHOD BLANK	10-10-00	ARSENIC	<0.05	mg/L
METHOD BLANK	10-10-00	BARIUM	<0.02	mg/L
METHOD BLANK	10-10-00	CADMIUM	<0.01	mg/L
METHOD BLANK	10-10-00	CHROMIUM	<0.01	mg/L
METHOD BLANK	10-10-00	LEAD	<0.05	mg/L
METHOD BLANK	10-10-00	SILVER	<0.02	mg/L
METHOD BLANK	10-10-00	SELENIUM	<0.10	mg/L
METHOD BLANK	10-19-00	MERCURY	<0.0002	mg/L
CONTROL SPIKE	10-10-00	ARSENIC	101 %	RECOVERY
CONTROL SPIKE	10-10-00	BARIUM	110 %	RECOVERY
CONTROL SPIKE	10-10-00	CADMIUM	99 %	RECOVERY
CONTROL SPIKE	10-10-00	CHROMIUM	102 %	RECOVERY
CONTROL SPIKE	10-10-00	LEAD	99 %	RECOVERY
CONTROL SPIKE	10-10-00	SILVER	101 %	RECOVERY
CONTROL SPIKE	10-10-00	SELENIUM	103 %	RECOVERY
CONTROL SPIKE	10-19-00	MERCURY	99 %	RECOVERY



COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 REV 5.0 / GA-115-CRLOGIN-F

LAB NAME: AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): PAUL C. KEMPEN

REC'D DATE 10/05/00

RECEIVED BY (SIGNATURE):

TIME REC'D 13:35

LOGGED IN BY (SIGNATURE):

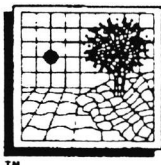
LOG-IN DATE 2000-10-05 15:01

PROJECT: MODINE MFG	Client Sample #	Sample Fraction @	Assigned LAB#	Cooler I.D.	pH Check	ACID/ BASE LOT#	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
EPISODE: 30986							
SAMPLE DELIVERY GROUP: 30986							
Remarks	BH-1A(11)		30986.01	2-114	N		GOOD/4.2C
1. CUSTODY SEAL(S): Present/Absent Intact/ Broken	BH-2A(11)		30986.02	2-114	N		GOOD/4.2C
2. CUSTODY SEALS NOS.:	BH-3A(10)		30986.03	2-114	N		GOOD/4.2C
	BH-4A(6)		30986.04	2-114	N		GOOD/4.2C
	MW-1		30986.05	2-114	N		GOOD/4.2C
3. CHAIN-OF CUSTODY. Present/Absent Sealed In Plastic? Yes/ No Taped To Lid? Yes/ No Properly Filled Out (Ink, Signed, ETC.)? Yes/ No	MW-2		30986.06	2-114	N		GOOD/4.2C
	MW-3		30986.07	2-114	N		GOOD/4.2C
	MW-5		30986.08	2-114	N		GOOD/4.2C
4. AIRBILL AirBill/ Sticker Present/Absent	MW-4		30986.09	2-114	N		GOOD/4.2C
	MW-4A		30986.10	2-114	N		GOOD/4.2C
5. AIRBILL NO:	EB-1		30986.11	2-114	N		GOOD/4.2C
6. COOLER CONDITIONS Enough Ice? Yes/ No Type of Ice? Wet Type of Packing? Bubble Wrap							
7. SAMPLE TAGS Present/Absent							
8. SAMPLE CONDITION: Intact/ Broken*/ Bottles Sealed In Leaking Separate Plastic Bags? Yes/ No Correct Containers Used For Tests Indicated? Yes/ No Correct Preservative? Yes/ No Sufficient Sample? Yes/ No Labels Complete (I.D., Date, Time, Signature, Preservative)? Yes/ No VOA Samples Without Bubbles? Yes/ No~							
9. Does Information on Custody Records, Labels, Tags Agree? Yes/ No*							
10. RAD SCREEN WITH GIEGER COUNTER? Yes/ No							
11. P.O. Called? Yes/ No							

* Contact PO and attach record of resolution

@ Sample Fractions: B=SV GC/MS, V= VOA GC/MS or GC, P=Pesticide, H=Herbicide, D=Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.



ATAS Client Name CH2M Hill				No. of Containers		Type of Analysis VOC Method 5035 VOC SW 8260 Dissolved RCR Metals										Collector's Initials		Remarks		Lab Use Only Initials Date Location	
Project Name Madine Mfg.		Project # 161004.CA.01																			
Form Completed By C. English & T. Swoveland		P.O. #																			
Sample ID/Location	Sample Date	Sample Time	Sample Matrix	Grab	Comp																
BH-1A(11)	10/3/00	0922	soil	✓		2-entire 1-4oz	X											TSC	30986.01		
BH-2A(11)	10/3/00	1031	soil	✓		"	X											TSC	02		
BH-3A(10)	"	1105	"	✓		"	X											TSC	03		
BH-4A(6)	"	1130	"	✓		"	X											TSC	04		
MW-1	10/4/00	1553	water	✓		2-vials 1-poly		X	X									TSC	05		
MW-2	"	1702	"	✓		"		X	X									TSC	06		
MW-3	"	1140 1648	"	✓		"		X	X									TSC	07		
MW-5	"	1618	"	✓		"		X	X									TSC	08		
MW-4	10/5/00	1003	"	✓		"		X	X									TSC	09		
MW-4A	10/5/00	1200	"	✓		"		X	X									TSC	10		
EB-1	"	1025	"	✓		"		X	X									TSC	11		

Relinquished by:		Received by:		Relinquished by:		Received by:	
Signature <i>C. English</i>	Signature <i>Paul C. Kemper</i>	Signature	Signature	Signature	Signature	Signature	Signature
Printed Name C. English	Printed Name Paul C. Kemper	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm CH2M Hill	Firm ATAS	Firm	Firm	Firm	Firm	Firm	Firm
Date/Time 10/5/00 1335	Date/Time 10/5/00 13:35	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

Samples received unannounced with less than 48 hours holding time and/or ASAP request may be subject to additional surcharges.

Turnaround Requirements
 ___ ASAP
 ___ 5 working days
 ___ 10 working days
 ___ 15 working days

Preservatives
 A-Cold
 B-HNO₃
 C-H₂SO₄
 D-NaOH
 E-HCl
 F-____

4.2°C Temperature

SEND RESULTS TO (Name & Company) :

Original to ATAS / Conv to Client